Rhodora

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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 19. August, 1917. No. 224.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY.—NEW SERIES, NO. L.

M. L. Fernald.

I. SOME POLYGONUMS NEW TO NORTH AMERICA.

Polygonum laxiflorum Weihe. In September, 1916, Mr. Bayard Long and the writer noticed in a roadside ditch at Bowdoinham, Maine, a *Polygonum* which had much the habit of *P. Hydropiper* L., with which it was growing, but which differed at first glance in its much deeper rose-colored or crimson flowers and somewhat broader leaves. Specimens were collected and upon study the plant proves to be *P. laxiflorum* Weihe, Flora, ix. 746 (1826), the plant which is frequently found in herbaria under the name *P. mite* Schrank. *P. mite*, however, according to Moss [1] is synonymous with *P. minus* Huds. So far as the writer can determine by close examination of all the material in the Gray Herbarium and the herbarium of the New England Botanical Club, *P. laxiflorum* has not heretofore been collected in America, but its abundance in the ditch at Bowdoinham indicates its thorough establishment there and the likelihood that, with attention especially directed to the plant, it will soon be found to be somewhat widely distributed with us. The plant, as above stated, resembles *P. Hydropiper* but has deeper-colored flowers; and it is at once separated by the fact that its perianth is strictly glandless and its achene smooth and lustrous, the perianth of *P. Hydropiper* being glandular-dotted and the achene punctate and opaque or dull.

[1] Moss, Camb. Brit. Fl. ii. 121 (1914).

POLYGONUM MINUS Huds. Fl. Angl. 148 (1762). This delicate species, closely related to *P. laxiflorum* above discussed, is not generally recognized as a North American plant but in the Gray Herbarium are two sheets from Lancaster County, Pennsylvania, which are clearly referable to it. The first collection was made on October 31, 1891, by Heller & Small in Smithville Swamp No. 2 and distributed by Heller as no. 652, *P. acre* HBK. The other collection was made by Mr. Heller on September 23, 1901, in a swamp two miles south of Refton and distributed as *P. punctatum*, var. *leptostachyum* (Meisner) Small. *P. minus* is a very slender species with glabrous perianths and lustrous achenes, much as in *P. laxiflorum* but very much smaller, the achenes only 1.5 mm. long, those of *P. laxiflorum* being 3 mm. long. The Lancaster County material exactly matches the plate in the Moss's *Cambridge British Flora* designated *P. minus*, var. *subcontiguum*, which is there ascribed to Wallich, Pl. Asiat. Rar. iii. 57 (1832). But Wallich neither published the plant under *P. minus* nor as var. *subcontiguum*, and in fact the treatment in Wallich's work was by Meisner. The variety was published as *P. strictum* All., var. *subcontinuum*. As a variety of *P. minus* it should be called

POLYGONUM MINUS Huds., var. **subcontinuum** (Meisn.), n. comb. *P. strictum*, var. *subcontinuum* Meisn. in Wallich, Pl. Asiat. Rar. iii. 57 (1832). *P. mite* * *strictum*, *b. pusillum* Fries, Fl. Suec. Mant. ii. 32 (1839). *P. minus*, var. *subcontiguum* Rouy, Fl. Fr. xii. 102 (1910.)— In this variety the spikes are very straight (not curving or drooping) and closely flowered, ranging in length from 1–2 cm.

POLYGONUM SAGITTATUM L., forma **chloranthum**, n. f.— perianthiis viridibus.

Perianths green.— MAINE: tidal mud-flats of Cathance River, Bowdoinham, September 14 & 19, 1916, *Fernald & Long*, no. 13,559 (TYPE in Gray Herb.).

Throughout its range both in America and in Asia *P. sagittatum* normally has the flowers pink,— either deep rose-color or pale pink — or sometimes nearly white, but on the tidal flats of Cathance River the green-flowered form is very abundant and so uniform as to give a distinctive color to large areas of the flats. The plant is there so constantly green-flowered that it deserves at least formal recognition. The material gathered on September 19 was still in young flowering condition and in only a few heads are the achenes well formed. It is possible that the plant growing in this estuary, subject to regular

inundations, may be much less fertile than the ordinary pink-flowered plant of less inundated situations. That it has not completely lost its fertility, however, is shown by good achenes which are found in a few heads.

II. NEW OR CRITICAL SPECIES OR VARIETIES OF RANUNCULUS.

Ranunculus Purshii Richardson, var. **prolificus**, n. var., ramis valde adscendentibus 7–50-floris; foliis bracteiformibus simplicibus vel subsimplicibus numerosissimis, inferioribus 1–4 cm. longis.

Branches strongly ascending, 7–50-flowered: the simple or subsimple bracteal leaves numerous; the lower 1–4 cm. long.— Magdalen Islands: wet meadow, Grindstone, July 22, 1912, *Fernald, Bartram, Long & St. John*, no. 7482 (type in Gray Herb.).

Similar specimens referred in the herbarium sometimes to *R. Purshii*, sometimes to *R. sceleratus*, and by some collectors suggested as a hybrid of these two species, have been examined from Michigan and Montana. On the Magdalen Islands, where this plant forms a characteristic large colony in a meadow, no *R. sceleratus* has been found; and the plant there seems to be a definite, though extreme, variation from *R. Purshii*. In the typical form of the species the branches are prostrate or only slightly ascending and bear only 1–4 flowers, and the simple or subsimple bracteal leaves, when present, are rarely more than one or two in number and very small.

Ranunculus Flammula and R. reptans in North America.— Although often treated as a variety of *Ranunculus Flammula* L., *R. reptans* L. seems to merit recognition as a species. It is of general distribution in boreal regions, while *R. Flammula* of temperate Eurasia is known in North America only from southeastern Newfoundland, where it is associated with many other typical western European species unknown elsewhere in North America, and on the Pacific slope from southern British Columbia to California. Slender extremes of *R. Flammula* and the coarsest extremes of *R. reptans* somewhat simulate one another but all so-called transitional material seen by the writer is definitely referable to one or the other species in its floral characters and entirely consistent in geographic range. The usually stout ascending or merely trailing *R. Flammula* of Europe, Newfound-

land, and Pacific North America has the inflorescence, when well developed, a loose corymbose cyme with 2–30 flowers; the sepals are 3–4 mm. long; the broadly obovate or roundish petals 4–7 mm. long, 4–7 mm. broad, sessile or nearly so, 9–13-nerved; stamens 25–50; carpels 25–50, forming globose fruiting heads 3.5–5 mm. long; and the achenes are merely short-tipped. The slender, ordinarily filiform and repent branches of *R. reptans*, on the other hand, bear solitary flowers; the sepals are 2–2.8 mm. long; the petals narrowly obovate to oblong, 2.5–5 mm. long, 1–3 mm. broad, usually with a definite claw, 3–9-nerved; stamens 10–20; carpels 15–20, forming a hemispherical or spherical fruiting head 1.5–3 mm. long; and the achenes are distinctly beaked.

R. Flammula, var. *intermedius* Hook. has long passed as a plant transitional between *R. Flammula* and *R. reptans*, and in recent years it has been made to include very diverse elements. Thus, in the *Synoptical Flora* it is said to be the same as *R. Flammula*, var. *unalaschcensis* Ledeb., to have "akenes of the type or more beaked," and to occur from "Shore of Lake Ontario [1] to California and Oregon and northward. (N. Asia, Eu.) Largest forms from western coast, nearly approaching the type; very slender and linear-leaved as well as small broader-leaved forms pass into **Var. reptans**, E. Meyer." [2] Examination of the material upon which this statement was based shows that the Lake Ontario plant, the "very slender and linear-leaved" form, has the floral and achenial characters of *R. reptans;* the Newfoundland plant of Robinson & Schrenk is typical *R. Flammula;* and the California and Oregon material examined by Gray, the "largest forms from western coast", has the flowers and fruit, likewise, of *R. Flammula.* This variety, thus made up of elements belonging on the one hand to *R. Flammula*, on the other to *R. reptans*, was naturally described by Gray, as having "akenes of the type or more beaked." The status of this very mixed variety was well characterized in the 7th edition of Gray's *Manual*, where *R. Flammula* was said to pass "through an undefinable var. INTERMEDIUS Hook., into var. **reptans**." [3]

It is quite certain that, when he published his *R. Flammula*, var. *intermedius* [published as *intermedia*], Hooker had no thought of including the *R. Flammula* of the Pacific slope, for he distinctly wrote: "It does not appear that any of the varieties are found on the Rocky

"[1] Eastward to St. John's, Newfoundland, *Robinson & Schrenk*," etc.

[2] Gray, Syn. Fl. 1. pt. 1, 26, 27 (1895).

[3] Robinson & Fernald in Gray, Man. ed. 7, 395 (1908).

Mountains, nor to the westward of them."[1] Hooker had three varieties of *R. Flammula:* α *major* which is the endemic American *R. laxicaulis* (T. & G.) Darby; "β. *intermedia;* caule repente gracili, foliis anguste lanceolatis superioribus linearibus integerrimis"; and γ *filiformis*, which was typical *R. reptans* L. The two latter, vars. *intermedius* and *filiformis*, he had from "gravelly banks of rivers from Canada to lat. 69°." Thus it is clear that Hooker was merely separating from the true slender-leaved *R. reptans* (his *R. Flammula* γ *filiformis*) a broader-leaved but repent slender plant of Canadian river banks, a plant scarcely separable from *R. reptans*, but somewhat broader-leaved than the typical form of the species.

Similarly the name *R. Flammula*, var. *unalaschcensis* (Bess.) Ledeb. has been taken up for the western form of *R. Flammula*, but in the Gray Herbarium, where there are several sheets from the Aleutian Islands, there is none which is not clearly referable to *R. reptans*, either narrow- or broad-leaved. The only description of var. *unalaschcensis* was in Flora Rossica and there is nothing in it to indicate that it is more than an extreme of *R. reptans*. Ledebour recognized true *R. reptans* with filiform or filiform-linear leaves as *R. Flammula* γ and contrasted with it a var. "β. caule prostrato radicante, foliis latioribus integerrimis, rarius unidentalis" which included "*R. unalaschcensis*, Besser in *herb. Zeyheri.*"[2] This, judging from various specimens from Unalaska and the other Aleutian Islands, was, then, a form of *R. reptans*. This broad-leaved extreme of *R. reptans* is

R. REPTANS, var. OVALIS (Bigel.) T. & G. Fl. N. A. i. 16 (1838). *R. filiformis*, var. β. *ovalis* Bigel. Fl. Bost. ed. 2, 224 (1824). *R. unalaschcensis* Bess. in Ledeb. Fl. Ross. i. 32, as syn. (1841). *R. Flammula*, var. *unalaschcensis* (Bess.) Ledeb. acc. to Regel, Bull. Soc. Nat. Mosc. xxxiv. pt. 2, 41 (1861). *R. reptans*, var. *strigulosus* Freyn, Deutsche Bot. Monatschr. viii. 181 (1890).

RANUNCULUS PYGMAEUS Wahlenb., var. **petiolulatus**, n. var., foliis radicalibus pedatim divisis, foliolis 3 petiolulatis rhomboideo-obovatis palmatis laciniis 3–5 oblongis vel valde divisis; capitulis fructiferis 5–7.5 mm. longis.

Radical leaves pedately divided; the 3 leaflets petiolulate, rhombic-obovate, palmate, with 3–5 oblong lobes or deeply divided: fruiting heads 5–7.5 mm. long.— QUEBEC: damp mossy hollows in shade of amphibolite rocks, altitude 950–1000 m., Mt. Albert, Gaspé County, August 8 & 10, 1905, *Collins & Fernald*, no. 82 in large part (TYPE in Gray Herb.).

[1] Hook. Fl. Bor.-Am. i. 11 (1829).
[2] Ledeb. Fl. Ross. i. 32 (1842).

Typical *R. pygmaeus* of the Arctic regions, Labrador and the Canadian Rocky Mountains has the basal leaves merely lobed, not divided to the base, and the fruiting heads are 3–5 mm. long. In its basal leaves var. *petiolulatus* is quite like the rare Rocky Mountain species, *R. Grayi* Britton, but it has the small petals and achenes of *R. pygmaeus*. On Mt. Albert collections were made on two days at different points and all the material distributed under one number. The full sheet retained at the Gray Herbarium contains a few plants of true *R. pygmaeus*, but most of the specimens (presumably from a different station) are the variety.

Ranunculus pedatifidus J. E. Sm., var. **leiocarpus** (Trautv.), n. comb. *R. affinis* R. Br. in Parry, 1st Voy. Suppl. App. 265 (1824). *R. affinis*, var. *leiocarpa* Trautv. in Middendorf, Reise in Sibir. i. 62 (1847).

All the material seen by the writer from Arctic America, the Labrador Peninsula, and the Hudson Bay region, including a duplicate type of *R. affinis* from Melville Island, has glabrous achenes and characteristic pedately many-cleft basal leaves. In the Rocky Mountain region this plant is rare, the common plants there being true *R. pedatifidus*, with pedately cleft basal leaves and pubescent achenes, and var. *cardiophyllus* (Hook) Britton,[1] with the basal leaves mostly uncleft and merely crenate or dentate. In Siberia, too, there are apparently large areas where only the glabrous-fruited variety is found. This, at least, is indicated by Trautvetter's note: "In specie minibus taimyrensibus omnibus Ranunculi affinis R. Br. ovaria prorsus glabra sunt; attamen in herbario horti botanici Petropolitani inter specimina daurica ejusdem speciei nonnulla inveni, in quibus carpella aeque pilis prorsus carent."

Ranunculus repens L., var. **pleniflorus**, n. var., foliis basilaribus ternatis, foliolis suborbicularibus basi rotundatis vel subcordatis margine crenatis vel late obtuseque dentatis; floribus plenis.

Basal leaves ternate; the suborbicular leaflets rounded or subcordate at base, the margin crenate or with broad obtuse teeth: flowers double.— Frequent in old gardens, and tending to become naturalized in meadows, roadside-ditches, etc. Type: well established in meadows and along roadsides, Oneida, Herkimer County, New York, May 30, 1900, *J. V. Haberer*, no. 1530 in Gray Herb.

[1] Records of this plant from Quebec and Labrador seem to have been based on *R. Allenii* Robinson, Rhodora, vii. 220 (1905).

This plant is generally called in horticulture *R. repens*, var. *flore-pleno* but the latter name (if it can be accepted as a valid name) belongs to the double-flowered European form of *R. repens* with the bases of the leaflets cuneate to subtruncate, as in true *R. repens*, and the teeth and segments elongate and subacute to acuminate. The history of var. *pleniflorus* is obscure. It is found in old gardens and as a somewhat naturalized weed in eastern America; but such illustrations of the double-flowered *R. repens* of Europe as the writer has seen, as far back as Gerard's *Herball* (ed Johnson, 1633), where the plant is figured as *Ranunculus dulcis, multiplex*, and Besler's *Hortus Eystettensis* (1613) where it is called *Ranunculus hortensis, multiflorus*, show the characteristically cuneate-based leaflets of *R. repens*.

III. SOME COLOR FORMS OF AMERICAN ANEMONES.

Anemone riparia Fernald. This northern riverbank and shore species differs constantly from the more southern *A. virginiana* in several characters as well as its northern range and very early flowering season (from May to July). Contrasted with *A. virginiana* it has the leaf-segments usually more cuneate at base, although this character is by no means absolute; anthers 0.7–1.2 mm. long, those of the more southern *A. virginiana* running from 1.2–1.6 mm. long; its fruiting head 7–11 mm. thick, as contrasted with *A. virginiana* in which the heads are 1.2–1.5 cm. thick; and the subulate pale styles ascending or subascending in fruit, as contrasted with the firmer, more divergent styles of *A. virginiana*. The two species are sometimes confused in flower owing to the fact that each presents a distinctly sepaloid or a pronouncedly petaloid perianth. *A. riparia*, in fact, appears in three well pronounced forms as follows:

A. riparia Fernald, Rhodora, i. 51, t. 3. (1899), typical form.— Sepals petaloid, white; at least the inner broadly oblong to oval, with rounded tips, 1.3–2 cm. long, 0.8–1.5 cm. broad.— Calcareous or slaty ledges, rarely in swamps, Gaspé County, Quebec, to British Columbia, south to Cape Breton and Pictou County, Nova Scotia, King's County, New Brunswick, central Maine, Franklin County, Massachusetts, northern Fairfield County, Connecticut, Sullivan and Tompkins Counties, New York, northern Illinois, Minnesota, etc.— Flowers late May to July.

Forma **rhodantha**, sepalis rubris.

Sepals bright red.— Quebec: gravelly banks of the Grand River, Gaspé County, July, 1902, *George H. Richards* (type in Gray Herb.).

Forma **inconspicua**, n. f., sepalis crassis coreaceis viridescentibus vel ochroleucis oblongo-acuminatis 0.7–1.3 cm. longis 2.5–5 mm. latis.

Sepals thick and leathery, greenish or greenish-white, oblong-acuminate, 0.7–1.3 cm. long, 2.5–5 mm. broad.— Range of the species, less common. As type may be cited the sheet in the Gray Herbarium collected on cold walls of Percé Mountain, Percé, Gaspé County, Quebec, July 25, 1905, by *Williams, Collins & Fernald.*

Anemone virginiana L. As stated in the discussion of *A. riparia*, that species and *A. virginiana* are often confused through the fact that in both species either leathery greenish sepals or thin petaloid white sepals occur. In typical *A. virginiana* the sepals are leathery and greenish, the form with thin petaloid white sepals being comparatively rare. These two forms may be separated as follows:

A. virginiana L. Sp. Pl. i. 540 (1753), typical form.— Sepals leathery, greenish or greenish-yellow, very pubescent on the back, narrowly oblong, acuminate, 0.7–1.3 cm. long.— Dry slopes, dry or rocky open woods, or occasionally in meadows, common in the southeastern United States extending northward to Lakes Erie and Ontario and the lower Ottawa River, Ontario, Hochelaga County and Lake Memphremagog, Quebec, southern Coös County, New Hampshire, and Oxford and southern Penobscot Counties, Maine.— Flowers late June to late August.

Forma **leucosepala**, n. f., sepalis tenuibus albis petaloideis, majoribus vix pubescentibus obovatis apice rotundatis 1.2–1.7 cm. longis.

Sepals thinnish and petaloid, white; the larger ones scarcely pubescent on the back, obovate, rounded above, 1.2–1.7 cm. long.— Less common than the typical form. As type specimen may be designated the plant collected on the north bank of the Swannanoa River near Biltmore, North Carolina, June 28 and August 9, 1897, and distributed from the *Biltmore Herbarium* as no. 54b (in Gray Herb.).

Anemone multifida Poir. *Anemone multifida* as it occurs in North America seems to be conspecific but not strictly identical in all details with the Patagonian and Chilean type of the species, although some Rocky Mountain specimens seem scarcely separable from the South American. The plant in eastern America is extremely variable and falls rather clearly into two pronounced varieties, each of which presents noteworthy forms. These eastern American variants of the species may be separated as follows:

A Sepals 5–10 mm. long: flowering stem 0.5–3 dm. high, 1–3-flowered.
Sepals yellowish-white within, yellowish, greenish or dull purplish outside, usually 5 ..... var. *hudsoniana.*
Sepals bright-red.
Sepals 5 ..... forma *sanguinea.*
Sepals very numerous (14–16) ..... forma *polysepala.*
A' Sepals 1.1–1.7 cm. long, usually 5 in number: flowering stem (1.5–) 3–7 dm. high, 1–5-flowered.
Sepals bright-red ..... var. *Richardsiana.*
Sepals milk-white ..... forma *leucantha.*

Var. HUDSONIANA DC. Syst. i. 209 (1817?). *A. Hudsoniana* Richardson in Franklin's Journ. 741 (1823).— Dryish slaty or calcareous ridges and gravel, local, eastern Newfoundland and Anticosti Island to the shores of Hudson Bay and westward, locally southward to Baie des Chaleurs, Quebec, Restigouche River, New Brunswick, St. John River and tributaries, New Brunswick and Maine, and Winooski River, Vermont.

Var. HUDSONIANA, forma **sanguinea** (Pursh), n. comb. *A. Hudsoniana β. Sanguinea* Richardson in Franklin's Journ. 741 (1823) based upon *A. sanguinea* Pursh ined. in herb. Lamb.— Of similar range, often more common.

Var. HUDSONIANA, forma **polysepala**, n. f., sepalis 14–16 — QUEBEC: banks of the Grand River, Gaspé County, June 20–July 10, 1903, *George H. Richards* (TYPE in Gray Herb.).

Var. **Richardsiana**, n. var., sepalis 1.1–1.7 cm. longis rubris saepissime 5; caulibus floriferis 3–7 dm. altis 1–5-floris.— QUEBEC: gravelly banks of the Grand River, Gaspé County, June 20–July 10, 1903, *George H. Richards* (TYPE in Gray Herb.), June 30–July 3, 1904, *M. L. Fernald;* banks of Restigouche River, Matapedia, June 28, 1904, *M. L. Fernald.*

Var. RICHARDSIANA, forma **leucantha**, n. f., sepalis lacteis.— QUEBEC: with the typical form, banks of the Grand River, Gaspé County, June 30–July 3, 1904, *M. L. Fernald* (TYPE in Gray Herb.).

IV. NEW SPECIES, VARIETIES AND FORMS OF SAXIFRAGA.

Saxifraga gaspensis, n. sp. *S. nivalem* simulans, differt foliis basilaribus angustioribus cuneato-obovatis basi angustatis subpetiolatis, apice acutis acute dentatis, 1.5–3 cm. longis 5–9 mm. latis; scapo gracile 1–7 cm. alto minute glanduloso-piloso; inflorescentia spicato-racemosa maturitate 1–2.7 cm. longa 3–5-flora; bracteis inferioribus oblongis vel ovatis acutis 5–8 mm. longis flores superantibus; pedicellis 2–3 mm. longis pilosis; tubo calycis viride hemisphaerico 1.5–2.5 mm. alto, lobis calycis oblongis vel anguste deltoideis fructu reflexis 1.8–2 mm. longis; petalis albis lanceolatis vel anguste ellipticis acutis vel subacutis 1.5–2 mm. longis 0.5–0.8 mm. latis; filamentis filiformibus subulatis purpurascentibus 1–1.2 mm. longis;

capsulis viridescentibus vel pallide brunneis 4 mm. longis, rostris foliculorum perbrevibus divergentibus.

Resembling *S. nivalis*, but the rosette-leaves more narrowly cuneate-obovate and more gradually narrowed to the broad petiolar base, acute at summit, 1.5–3 cm. long, 5–9 mm. broad, acutely dentate above the long-cuneate base: scape solitary, slender, 1–7 cm. high, minutely glandular-pilose: inflorescence spicate-racemose, in fruit 1–2.7 cm. long, 3–5-flowered: lower bracts oblong or ovate, acute, 5–8 mm. long, exceeding the flowers: pedicels 2–3 mm. long, pilose: calyx-tube green, hemispherical, 1.5–2.5 mm. high; calyx-lobes oblong or narrowly deltoid, reflexed in fruit, 1.8–2 mm. long; petals white, lanceolate or narrowly elliptical, acute or subacute, 1.5–2 mm. long, 0.5–0.8 mm. wide: filaments filiform-subulate, purplish, 1–1.2 mm. long: capsules greenish or pale-brown, 4 mm. long; the follicles with very short divergent beaks.— Quebec: very local, in sheltered pockets on abrupt western calcareous slopes, altitude 1000–1100 meters, Table-top Mountain, Gaspé County, August 5 and 12, 1906, *Fernald & Collins*, no. 600 (type in Gray Herb.).

Distributed as *S. nivalis*, from which it differs in many characters; *S. nivalis* having the leaves more rounded-oblong to round-obovate and narrowed to a more definite petiole and commonly much broader (0.7–3 cm.). The inflorescence of *S. nivalis* is usually more numerously flowered, varying from spiciform to corymbiform; its calyx-lobes are from 2–3 mm. long, spreading in fruit; its oblong petals are rounded at summit and 1.5–2.3 mm. wide; and its capsule is much larger, 5–7.5 mm. long. On Table-top Mountain the extremely local *S. gaspensis* was growing with other very localized species, *Carex rupestris* Allioni, *Pyrola grandiflora* Radius, *Pedicularis flammea* L., *Campanula uniflora* L. and *Senecio pauciflorus* Pursh.

Saxifraga nivalis L., var. **labradorica**, n. var., panicula corymbiformi laxa; floribus plerumque graciliter pedicellatis, pedicellis 3–10 mm. longis.

Panicle loosely corymbiform; the flowers mostly on slender pedicels 3–10 mm. long.— Labrador: Rama, August 20–24, 1897, *J. D. Sornborger*, no. 57 in part (type in Gray Herb.).

This is apparently the plant intended by Small in the *North American Flora* as *Micranthes tenuis*,[1] based upon *Saxifraga nivalis β. tenuis* Wahlenb. Fl. Lap. 114 (1812). Wahlenberg's variety went back to earlier species of Rottboel and of Martens which prove to be merely forms of *S. nivalis* in which the lower branch of the inflorescence is

[1] Small, N. A. Fl. xxii. 136 (1905).

slightly elongate, but the flowers, as in *S. nivalis*, are sessile or subsessile in glomerules and not slenderly pedicelled as in var. *labradorica*.

Saxifraga virginiensis Michx. In Essex County, Massachusetts, this species seems peculiarly subject to minor variations, four fairly distinguishable forms of the species there being found. In typical *S. virginiensis* the petals are white and the flowers and fruits pedicelled, the cymose branches of the panicle elongating in fruit. In the town of Andover, however, a singular form of the plant occurs; in fact, the only collections (3 in number) seen from Andover all belong to this peculiar form which may be called

S. virginiensis, forma **glomerulata**, n. f., floribus sessilibus in glomerulis dispositis.

Flowers sessile in glomerules at tips of the branches.— Massachusetts: Andover, 1901, *A. S. Pease*, no. 672; ledges, Rabbit Rock Pond, Andover, April 27, 1902, *A. S. Pease*, no. 673; Prospect Hill, Andover, May 24, 1902, *A. S. Pease*, no. 671 (type in Herb. New England Botanical Club).

In its sessile flowers borne in glomerules at the tips of the branches this singular form from Andover strongly suggests *S. nivalis* and by ordinary treatments of the genus in which *S. nivalis* is separated chiefly by its sessile flowers the Andover plant would fall readily into that species. *S. virginiensis* is distinguished, however, from *S. nivalis* by a number of characters which have not always been clearly recognized. In *S. nivalis* the bracts are from one-half to fully as long as the branches of the inflorescence; the calyx-lobes spreading in fruit; the petals 1.5–3.5 mm. long, about equaling or only slightly exceeding the calyx-lobes. In *S. virginiensis*, on the other hand, the bracts are many times shorter than the branches of the inflorescences; the calyx-lobes ascend in fruit; and the petals in the normal forms of the species are 4–5.5 mm. long, 2–3 times as long as the calyx-lobes.

Some aberrant forms of *S. virginiensis*, however, occur with the petals very small or wanting. These plants, of which two have been described as varieties, are not, however, varietal in character, seeming to occur merely as aberrant colonies within the range of the typical *S. virginiensis* and they should be treated rather as forms. The first is

S. virginiensis, forma **chlorantha** (Oakes), n. comb. *S. virginiensis*, var. *chlorantha* Oakes in Hovey's Mag. xiii. 218 (1847), described as follows: "Petals pale green, instead of snow white, as in

the common variety. The margins and backs of the petals are also sprinkled with short hairs like those of the rest of the plant, but paler, and not so uniformly glandular. Topsfield, Mass., 1842."

The other variation was described from Manhattan Island, New York, but has been collected by the late J. H. Sears in Essex County, Massachusetts, at a station where the plant is said to be abundant. This is

S. VIRGINIENSIS, forma **pentadecandra** (Sterns), n. comb. *S. virginiensis*, var. *pentadecandra* Sterns, Bull. Torr. Bot. Club, xiv. 124 (1887) and xv. 166 (1888).— Petals replaced by stamens; the latter 15.— Originally described from Manhattan Island, New York, where the plant was extremely scarce; found in profusion on garnet slate rock between White's and Perkins's Hills, Essex County, Massachusetts, by *J. H. Sears*, May, 1898.

SAXIFRAGA PENSYLVANICA L., forma **fultior**, n. f., bracteis inferioribus dilatatis ovalibus 7–10 cm. longis 4–5.7 cm. latis.

Lower bracts dilated, oval, 7–12 cm. long, 4–5.7 cm. wide.— NEW HAMPSHIRE: bog on Gap Mountain road, Jaffrey, May 30, 1899, *E. F. Williams* (TYPE in Herb. New England Botanical Club); brookside, Fitzwilliam road, Jaffrey, May 30, 1899, *Rand & Robinson*, no. 82∅.

In typical *S. pensylvanica* the lower bracts are slender and many times shorter than the mature branches of the panicle, but in this extreme form from Jaffrey these dilated oval bracts are from one-half to two-thirds as long as the mature branches of the panicle and render the plant quite different in appearance from the typical almost naked-stemmed form.

V. A NEW VITIS FROM NEW ENGLAND.

For many years the writer has been familiar with a wild grape of the Penobscot Valley in Maine which it has been impossible satisfactorily to place with any of the defined species. An entirely similar vine from various other river valleys of northern and western New England has been collected and deposited in either the Gray Herbarium or the herbarium of the New England Botanical Club and from time to time these plants have been labeled by the great specialist upon American grapes, the late T. V. Munson, or by Prof. L. H. Bailey as *Vitis Labrusca* × *vulpina*. The vines in many ways are quite intermediate between the two species, *V. Labrusca* L. and *V. vulpina* L., having

the green foliage of the latter, the leaf-contour nearly of the former, the tendrils and inflorescences often continuous (that is, several in succession before an interruption) as in *V. Labrusca*, the grapes large as in the latter species but with the clear acid flavor without "muskiness" as in *V. vulpina*. The seed of this grape is quite as large as in *V. Labrusca* but somewhat more slender.

The disposition of this plant as a hybrid between *V. vulpina* and *V. Labrusca* has never been satisfactory to the present writer for the very practical reason that the intermediate vine occurs in great profusion as a river-thicket vine, climbing high over the trees of the alluvial banks, in river valleys where no plants of either of the supposed parent have ever been detected. In Maine *V. Labrusca* is confined to the coastal strip eastward to Penobscot Bay (and there very rare and local), extending inland to the Saco and lower Androscoggin Valleys. *V. vulpina*, on the other hand, is an extremely rare vine in Maine. It occurs from the mouth of the Aroostook River southward along the St. John in New Brunswick and is presumably found along the Aroostook River across the border in Maine. It is found in the valley of the Piscataquis (southeast of Moosehead Lake), in the valley of the Sandy River (southeast of the Rangely Lakes) and locally in the Androscoggin Valley and southward into York County. North of Maine it extends to Lake St. John and thence westward to the Rocky Mountains and it is broadly distributed from western New England southwestward.

The intermediate vine, as demonstrated by careful botanizing in the valleys of the St. John, Penobscot, Kennebec and some of the minor rivers of Maine during the summer of 1916 by Mr. Long and the writer, is the characteristic grape-vine in alluvial thickets throughout central and west-central Maine where no *V. Labrusca* is found and where no *V. vulpina* has been observed. It is a locally abundant vine along the main Penobscot northward as far as northern Penobscot County, along the Kennebec northward nearly to Moosehead Lake, along the Androscoggin into Coös County, New Hampshire, where, I am informed by Dr. A. S. Pease, no *V. Labrusca* is known; and the Gray Herbarium and the herbarium of the New England Botanical Club show characteristic specimens from southwestern Maine and northeastern Massachusetts and from the Connecticut Valley of New Hampshire, Massachusetts, and northern Connecticut.

Only in this latter valley and in the region from southern Maine

to eastern Massachusetts do all three species generally occur and it is quite possible that here the intermediate plant is of hybrid origin; but the specimens cited below from these regions are so exactly like those from central Maine, where the plant is the one wild grape of the river valleys and where it cannot readily be accounted for as a hybrid at least of recent origin, that the writer feels that the intermediate plant should be given specific recognition. Even though it may have been of hybrid origin in the long-distant past it has now become a thoroughly fixed and constant vine through a considerable area and demands the same recognition that is given other species of similarly intermediate characters but distinct ranges, such for instance as *V. Treleasei* Munson. The vine may be appropriately called

Vitis **novae-angliae**, n. sp., ab *V. vulpina* differt foliis rotundatis vel reniformi-ovatis obsolete 3-lobatis (dentibus late deltoideis vix prolongatis) subtus pilosis vel arachnoideis subglabratis vel ad nervos pilosis vel arachnoideis junioribus tomentosis tomento plus minusve rufescento; pampinis thyrsisque 2–8 continuis vel interruptis; baccis oblatis maturitate atropurpureis glaucis 1.2–1.7 cm. diametro; seminibus 6–7 mm. longis.

Differing from *V. vulpina* in having the leaves round or reniform-ovate, obscurely 3-lobed and with broad scarcely prolonged deltoid teeth, pilose, arachnoid or subglabrate beneath or with some pubescence persistent along the nerves; the young more or less rufescent-tomentose: tendrils and inflorescences 2–8, continuous or interrupted: berries oblate, in maturity black-purple, glaucous, 1.2–1.7 cm. in diameter: seeds 6–7 mm. long.— Alluvial or rich thickets, Maine and New Hampshire to Connecticut. Types collected in river-thicket by the Penobscot, Orono, Maine, June 27, 1906, in flower, *M. L. Fernald;* August 17, 1908, in well grown fruit, *M. L. Fernald;* and in late September, 1908, mature fruit, *Margaret Fernald Pierce* (all in Gray Herb.). Other specimens examined. Maine: margin of the Penobscot River, Winn, July 10, 1916, *Fernald & Long,* no. 14,063; river-thicket by the Penobscot, Orono, July 5, 1890, *M. L. Fernald,* 1891, *Kate Furbish;* low woods by Hermon Pond, Hermon, July 8, 1916, *Fernald & Long,* no. 14,062; alluvial thicket by Marsh Stream, Frankfort, July 21, 1916, *Fernald & Long,* no. 14,065; along the Kennebec, Carrying Place, Somerset County, July 29, 1892, *M. L. Fernald;* alluvial thickets by the Kennebec, Fairfield, July 24, 1916, *Fernald & Long,* no. 14,066; by Sebasticook River, Clinton, June 27, 1911, *R. C. Bean;* alluvial woods by the Kennebec, Vassalboro, July 6, 1916, *M. L. Fernald,* no. 14,061; steep bank by the sea, Rockland, August 22, 1909, *M. L. Fernald;* river-thicket, Sandy River, Farmington, September, 1892, and September, 1902, *C. H. Knowlton;* banks of Androscoggin River, Gilead, 1897, *Kate Furbish;* forming an extensive tangle, inner side of gravelly barrier bar, Gerrish Island,

Kittery, August 11, 1916, *Fernald & Long*, no. 14,068. NEW HAMPSHIRE: Androscoggin River, Shelburne, July 11, 1882, *Walter Deane;* roadside west of Gates Cottage, Shelburne, September 12, 1907, *A. S. Pease*, no. 10,798; climbing high over trees by the Androscoggin, Shelburne, September 27, 1916, *A. S. Pease*, no. 16,908; near Mascomp Lake, Enfield, August 22, 1878, *H. G. Jesup.* MASSACHUSETTS: Georgetown, August 9, 1907, *E. F. Williams;* Sudbury, September 2, 1885, *C. W. Swan;* roadside, North Wilbraham, May 16 & 18, 1913, *M. L. Fernald & F. W. Hunnewell, 2nd;* banks of Connecticut River, Hadley, July 1, 1874, *H. G. Jesup.* CONNECTICUT: banks of Connecticut River, South Windsor, October 8, 1890, *E. Watson.*

Although resembling *V. Labrusca* in its usually continuous tendrils and inflorescences, in the contour of the leaf as well as in the rufescent tomentum of the very young leaves, and in its large fruits and seeds, *V. novae-angliae* in no material examined shows any tendency to retain the tomentum as does *V. Labrusca*, except as an insignificant vestige along the nerves on the lower side of the leaves. Its fruit has a clear, sharp acid flavor and quite lacks any suggestion of the "muskiness" so characteristic of *V. Labrusca.* If the species were a hybrid of *V. vulpina* and *V. Labrusca* it is almost inconceivable that this peculiar flavor so characteristic of *V. Labrusca* should not appear in *V. novae-angliae.*

V. vulpina, which *V. novae-angliae* resembles in its green foliage and in its habitat in rich river-alluvium, has the more elongate leaves jagged-dentate with prolonged teeth; the young growth not rufescent; the tendrils and inflorescences with much more interrupted distribution; and the berries and seeds decidedly smaller.

VI. GENTIANA CLAUSA A VALID SPECIES.

In the *Synoptical Flora of North America* Gray clearly defined the corolla-characters separating *Gentiana Saponaria* L. and *G. Andrewsii* Griseb. In the former species, as stated by Gray, the corolla is "light blue, an inch or more long, its broad and roundish short lobes erect, little and often not at all longer than the 2-cleft and many-toothed intervening appendages"; while in *G. Andrewsii* the corolla is "as the preceding but more oblong and the lobes obliterated or obsolete, the truncate and usually almost closed border mainly consisting of the prominent fimbriate-dentate intervening appendages." [1]

[1] Gray, Syn. Fl. ii. pt. 1, 122 (1878).

That Gray clearly understood the two species is shown not only by his treatment in the *Synoptical Flora* but by the specimens which bear the labels inserted by him at that time. Subsequently, however, it has become a quite general practise to treat essentially all the large-leaved Closed Gentians of New England, northern and central New York and adjacent Canada as *G. Andrewsii*, presumably because of their very definitely "closed" corolla, although a few specimens from the northern states have been called *G. Saponaria*. A study of the northern material shows, however, that the common plant of New England and of many parts of the northern states and adjacent Canada is neither *G. Andrewsii* nor *G. Saponaria*, but is a distinct species combining the foliage-characters of *G. Andrewsii* with the corolla-characters nearly of *G. Saponaria*. This plant, which is apparently rare south of the northern states, extends along the mountains somewhat locally to North Carolina, occurring there only at the higher altitudes (Roan Mountain, etc.). This is the species which was well characterized (as Rafinesque's descriptions go) by Rafinesque as *G. clausa*.[1] Rafinesque's description was as follows:

"5. *G. Clausa* Raf. Closed Gentian. Stem round smooth, leaves ovate lanceolate, acuminate, subtrinerve: flowers verticillate, sessile; calix four to six cleft angular, segments foliaceous short: Corolla clavate, short, closed 8–10 teeth, internal teeth equally bilobe. On the Taconick and Green mountains, flowers blue, half the size of *G. Saponaria* and quite shut. Variety with ternate lanceolate leaves."

As above implied *G. Andrewsii* is a less common plant in New England than *G. clausa;* in fact, its representation in the Gray Herbarium and the herbarium of the New England Botanical Club indicates that it is extremely local, the only New England material found in these herbaria coming from eastern Massachusetts. Whether the plant is as local as this herbarium-representation implies of course can be determined only by further field-study, but it is significant that among the scores of herbarium sheets which have accumulated from the New England region practically all should prove to be *G. clausa* rather than *G. Andrewsii*.

G. Saponaria has been included in many New England lists but so far as the writer can determine this species is essentially a coastal plain plant extending northward along the coastal plain to Staten Island

[1] Raf. Med. Fl. i. 210 (1828).

and Long Island and occurring very locally in central New York. No New England material of it has been observed.

To summarize, the three plants which have been so generally confused in northeastern floras may be distinguished by the following key:

Corolla with nearly truncate summit; the firm true lobes nearly obsolete, narrowed at summit; the broader intervening thin prolongations of the membranous bands forming a fimbriate-dentate border.....*G. Andrewsii.*

Corolla with the broad rounded lobes 2–8 mm. long, as broad as or broader than the intervening 2–3-cleft appendages.

Leaves lanceolate to ovate-lanceolate, acuminate: involucre of 4–6 leaves; the 2–4 outer (except in dwarf specimens) subequal, 5–10 cm. long, 2–4 cm. broad: calyx-lobes herbaceous, oblong to obovate, finally spreading: corolla 2.5–4 cm. long, scarcely opening; the rounded lobes slightly incurved.....*G. clausa.*

Leaves oblong to elliptic, acute or obtuse, not acuminate: involucre of 2–4 leaves, the outer 3–6.5 cm. long, 0.7–2 cm. broad: calyx-lobes firm, linear to oblanceolate, ascending: corolla 3–5 cm. long, distinctly open; the rounded to subacute lobes erect.....*G. Saponaria.*

Further observation of the plants is required before the exact distribution in the northeast is known, but at present it may be stated as follows:

Gentiana Andrewsii Griseb.— Meadows, prairies, low thickets, banks of streams, etc., frequent in the southeastern states, extending locally northward and eastward to York, Frontenac and Carleton Counties, Ontario, Ottawa and Hochelaga Counties, Quebec, and eastern Massachusetts.

G. clausa Raf.— Borders of rich woods and thickets, banks of streams, meadows, etc., locally abundant from Kennebec County, Maine, to Lake Champlain, New York, and westward to western New York, southward to Bristol County, Massachusetts, Providence County, Rhode Island, southern Connecticut, and locally along the mountains to North Carolina.

G. Saponaria L.— Glades and sandy swamps of the coastal plain and piedmont regions north to Staten Island and Long Island, and very locally inland to Yates County, New York (*Sartwell*).

The writer has not seen fresh flowers of either *G. Andrewsii* or *G. Saponaria* but the fresh flowers of *G. clausa* are of a decided porcelain-blue color quickly changing in age or in drying to a rich blue-violet.

VII. SOME FORMS OF AMERICAN GENTIANS.

Gentiana Amarella L. Sp. Pl. i. 230 (1753). *G. acuta* Michx. Fl. Bor.-Am. i. 177 (1803). *G. plebeja* Cham. ex Bunge, Moscou Soc. Nat. Hist. Nouv. Mém. i. 250, t. 9, fig. 5 (1824). *G. Amarella*, var.

acuta (Michx.) Herder, Act. Hort. Petrop. i. 428 (1872). *Amarella acuta* (Michx.) Raf. Fl. Tellur. iii. 21 (1836). *A. plebeia* (Cham.) Greene, Leaflets, i. 53 (1904). *A. Amarella* (L.) Cockerell, Am. Nat. xl. 871 (1906).— I am unable to discern any constant differences between the American and the European plant. The differences maintained by Grisebach all fail in a good series of specimens. Grisebach's statement, under *G. acuta*, was as follows:

"This species is extremely like our *G. Amarella;* it seems, however, to differ constantly in the way the leaves embrace the stem. In *G. Amarella* the lamina of the two leaves ends at that point where they are affixed to the stem, so that they are separated from each other by an interstice formed by the stem; while in *G. acuta* the bases of both leaves touch each other without any interstice, so that the substance of the leaves itself is somewhat connate: this character seems to be invariable throughout all those numerous forms in which these species are so rich; the upper leaves of *G. acuta* are, besides, always longer and more acute, and the leaves near the root are more or less spathulate, while in *G. Amarella* the leaves are always more equal in the same individual; the beard of *G. acuta* is longer and thinner, so as to disappear almost wholly here and there; the flowers are somewhat smaller; the calyx is shorter and more unequal; the stem more angular, and commonly almost winged. Besides, most of its forms are much stiffer, taller, and more branched; the stem often produces such slender and numerous branchlets from the under axillae as has been mentioned above of *G. propinqua*." [1]

As stated, every one of these points urged by Grisebach fails, and many American specimens are closely matched in all details by European specimens.

Gray stated that var. *acuta* has the "crown usually of fewer and sometimes very few setae," [2] and Engelmann that it has 5-parted flowers while "The true European *G. Amarella* has usually 4-parted flowers"; [3] but examination of plates of the European plant, if specimens are not available, quickly disposes of the latter point, for the European, like the American, has frequently 5-merous flowers. And the crown of nearly all American material is quite as fully developed as in the European; in fact most specimens have essentially identical crowns.

[1] Grisebach in Hook. Fl. Bor.-Am. ii. 64 (1838).
[2] Gray, Syn. Fl. ii. pt. 1, 118 (1878).
[3] Engelm. in Wheeler Exped. Rep. vi. Bot. 195 (1879).

Attempts have been made to distinguish the American from the Old World plant by the more acute corolla-lobes and smaller seeds, but abundant specimens show these characters to fail and this was realized as early as 1862 by Engelmann when he wrote: "*G. acuta* is evidently but a form, a geographical variety of *G. Amarella*, as Dr. Hooker has indicated, and which is confirmed by our dwarf variety and other forms collected in Colorado....; the characters of acutish lobes of the corolla and small seeds do not hold good; Dr. Parry's No. 307 has seeds as large as *G. Amarella* from Prussia, and several forms have quite obtuse lobes." [1]

Nearly all authors have agreed that *G. acuta* and *G. plebeja* are identical and in view of this fact it is worthy of note that Chamisso himself did not publish *G. plebeja*. It was published by Bunge in 1824 as "*G. plebeja* Chamisso in litteris"; but promptly, in 1826, Chamisso & Schlechtendal repudiated the species, placing it unequivocally under *G. Amarella* and saying: "Huic speciei addinus Gentianam in herbosis insulae Unalaschka lectam olinque sub nomine G. plebejae a Chamissone cum amicis communicatam." [2]

Although *G. acuta* does not differ even varietally from *G. Amarella* it is noteworthy that Michaux's type material collected at Tadousac in eastern Quebec was not the common lilac-flowered form of the plant but a somewhat unusual form with the flowers creamy-white or yellowish, or, as described by Michaux "viridi-lutei." This ochroleucous form is occasional about the Gulf of St. Lawrence, sometimes occupying habitats by itself, sometimes with the more common lilac-flowered *G. Amarella*. It is a striking color-variation but, in view of the fact that the name *G. acuta* has been so generally used in the specific or varietal sense, it would be highly misleading to perpetuate the descriptive name *acuta* for a form which is characterized only by its yellowish flowers and not by any other differences. This ochroleucous form may, therefore, be designated

G. AMARELLA L., forma **Michauxiana**, n. nom. *G. acuta* Michx. Fl. Bor.-Am. i. 177 (1803), in the strict sense.— Corolla ochroleucous.

G. QUINQUEFOLIA L., forma **lutescens**, n. f., lobis corollae ochroleucis.

Corolla-lobes ochroleucous.— Occasional in the range of the typical lilac-flowered form. As TYPE may be designated material in

[1] Engelm. Trans. St. Louis Acad. Sci. ii. 214 (1862).
[2] Cham. & Schl. Linnaea, i. 181 (1826).

the Gray Herbarium, collected in Chester County, Pennsylvania, by *T. C. Porter*, November 2, 1886.

G. CRINITA Froel., forma **albina**, n. f., lobis corollae albis.

Corolla-lobes white.— Occasional with the typical blue-flowered form. TYPE: Waverley, Massachusetts, September, 1894, *T. D. Bergen* (in Gray Herb.).

G. LINEARIS Froel., forma **Blanchardii**, n. f., lobis corollae albis.

Corolla-lobes white.— Occasional in the range of the species. TYPE in Gray Herbarium, collected on open roadside, Woodford, Vermont, August 15, 1902, *W. H. Blanchard.*

White-flowered forms of the other closed Gentians undoubtedly occur but so far as the writer has seen they have been collected only in this species and in *G. Andrewsii* (forma *albiflora* Britton).

VIII. SOME NEW OR CRITICAL PLANTS OF EASTERN NORTH AMERICA.

HIEROCHLOA ODORATA (L.) Wahl., var. FRAGRANS (Willd.) Richter, forma **Eamesii**, n. f., panicula elongata 2–4 dm. longa, ramis paucis remotis.

Panicle elongate, 2–4 dm. long, with few elongate branches.— CONNECTICUT: border of cultivated field beside salt-marsh, Fairfield, May 13, 1910, *E. H. Eames*, no. 8339; field bordering salt-meadows in rich soil, May 27, 1914, *E. H. Eames*, no. 8734 (TYPE in Gray Herb.).

The common plant of boreal North America and the northeastern coast is not true *H. odorata* of the Old World and of the Rocky Mountain region, but is a pronounced variety, so well marked that by Willdenow, Pursh, Roemer & Schultes and other authors early in the 19th century it was considered a distinct species: *Holcus fragrans* Willd. Sp. Pl. iv. 936 (1805), Pursh, Fl. Am. Sept. i. 78 (1814); *Hierochloa fragrans* (Willd.) R. & S. Syst. ii. 514 (1817). Willdenow, however, surmised that it might be a variety, saying: "*Simillimus praecedenti* [*Holcus odoratus*] *differre tamen videtur*, calyce *floribus multo longiore*, corollis *margine non villoso-ciliatis* et flore *hermaphrodito apice laevi. An varietas* ? W." In western North America where true *Hierochloa odorata* abounds the two varieties clearly intergrade as they do in northern Europe.

Dr. Eames's extreme form of var. *fragrans* was distributed as

Savastana Nashii Bicknell, Bull. Torr. Bot. Cl. xxv. 104, t. 328 (1898), subsequently transferred to *Hierochloa* as *H. Nashii* (Bicknell) Kaczmarek, Am. Midl. Nat. iii. 198 (1914);[1] but the Eames material is clearly an extreme development of *H. odorata*, var. *fragrans* rather than the beautifully distinct *H. Nashii*. The latter species has very elongate firm and enduring cauline leaves and flowers in July and August. *H. odorata*, on the other hand, flowers in the eastern states in May and June and by July the short lanceolate soft cauline leaves as well as the culms are quite shriveled and brown.

Cyperus filicinus Vahl, var. **microdontus** (Torr.), n. comb. *C. microdontus* Torr. Ann. Lyc. N. Y. ii. 255 (1836).

C. filicinus Vahl (1806) must displace *C. Nuttallii* Eddy (1820). But the writer is unable to find any absolute character by which to separate *C. microdontus* specifically from it. Typical *C. filicinus* has the scales of the spikelets 2.5–3.5 mm. long, while *C. microdontus* has them only 2 mm. long, but occasionally colonies show scales intermediate in length and clearly bridging the gap between the two. In general, *C. filicinus* prefers saline or brackish habitats but is occasionally found in dune-hollows and other nearly fresh situations. In southeastern Massachusetts, at least, var. *microdontus* seems to be characteristic of fresh sandy pond-shores.

Stenophyllus capillaris (L.) Britton. *S. capillaris* presents two strikingly different variations which do not seem to have been recognized. In the typical form of the species the spikelets are 5–10 (rarely –20)-flowered, 2.5–7 mm. long, commonly ferruginous, occasionally blackish; all but the central (except in dwarfed plants with reduced inflorescences) commonly on slender pedicels up to 1.5 cm. long; and basal inflorescences are wanting or few and mostly on definite culms. This plant is common in the southern states and extends northward to Schenectady County, New York, northern Vermont, Coös County, New Hampshire, and Kennebec and southern Penobscot Counties, Maine. In the northern half of the range, from Missouri and Virginia northward, there often occurs a plant which in its well developed

[1] Kaczmarek makes the point that, if the American Code throws aside the generic names *Gillenia* Moench, Meth. Suppl. 286 (1802) and *Elodea* Michx. Fl. Bor.-Am. i. 20 (1803) on account of the earlier *Gillena* Adans. Fam. ii. 166 (1763) and *Elodes* Adans. l. c. 444 (1763), followers of that code should also discard the name *Savastana* Schrank, Baier. Fl. i. 100, 337 (1789) because of the earlier *Savastania* Scopoli, Introd. 213 (1777).

extreme appears quite distinct but which clearly passes into typical *S. capillaris*. This is

Stenophyllus capillaris (L.) Britton, var. **cryptostachys**, n. var., spiculis 12–56-floris 4–10 mm. longis plerumque nigrescentibus vel pullis sessilibusque; inflorescentiis basilaribus confertis sessilibus.

Spikelets 12–56-flowered, 4–10 mm. long, commonly blackish or dark-brown and sessile (or only 1 or 2 on short rays): basal inflorescences crowded, closely sessile.— Missouri and Virginia north to Ohio and New England. Type: sandy woods, Monteer, Missouri, October 9, 1910, *B. F. Bush*, no. 6398c (in Gray Herb.).

Carex echinata Murr. Prodr. Fl. Goth. 76 (1770); Britten, Journ. Bot. xlv. 163 (1907); Briq. Prodr. Fl. Corse, i. 199 (1910); not Murr. herb. nor Kükenthal and others. *C. Leersii* Willd. Fl. Berol. Prodr. 28 (1787). *C. stellulata* Good. Trans. Linn. Soc. ii. 144 (1794).— The nomenclature of this species has been most distressingly confused and it is apparent that many botanists have not seen or interpreted in their full significance the above cited notes by Messrs. James Britten and Jean Briquet. Murray, in publishing *C. echinata*, gave absolutely no original description but cited a description of Haller's and a plate in Flora Danica, both of which are unquestionably the plant which was later called *C. Leersii* Willd. or *C. stellulata* Good. Murray's treatment was as follows: "*Carex echinata* mihi f. Car. spicis ternis echinatis glumis lanceolatis, capsulae mucrone simplici Hall. Hist. n. 1366. Oed. Dan T. 284." As distinctly pointed out by James Britten (l. c.), and again by Briquet (l. c.), the fact, that Murray had specimens as *C. echinata* which are not the species described by him under that name, in no way invalidates the use of the name for the plant actually described.

Decodon verticillatus (L.) Ell., var. laevigatus Torr. & Gray, Fl. i. 483 (1840), described as "glabrous; leaves bright green" as contrasted with var. *pubescens* Torr. & Gray, l. c. with "stem and lower surface of the leaves more or less tomentose-pubescent," is a well marked geographic variety. Var. *pubescens* shows a strong inclination to follow the coastal plain and related areas, while var. *laevigatus* is rare or local in the coastal plain region but more general inland. As represented in the Gray Herbarium the two varieties have the following ranges.

Var. pubescens.— Florida to Maine, chiefly on the coastal plain or on the outwash plains of southern New England, extending inland to northwestern Georgia, and in New England to Hampden County,

Massachusetts, and southern Kennebec and southern Penobscot Counties, Maine; also St. Clair County, Illinois to northeastern Illinois, northern Indiana, and southwestern Ontario.

Var. LAEVIGATUS.— Central Illinois and the upland of Tennessee and southwestern Virginia, north to central Wisconsin, western and northern New York, northern Vermont, Grafton County, New Hampshire, and Franklin County, Maine.

ASTER CORDIFOLIUS L., var. **racemiflorus**, n. var., a forma typica recedit foliis cordatis argute dentatis sinu clauso; capitulis valde racemosis, racemis lateralibus divergentibus vel flexuoso-recurvatis.

Differing from the typical form of the species in having the cordate leaves coarsely dentate, and the sinus closed: heads conspicuously racemose; the lateral racemes divergent or flexuous-recurved.— PRINCE EDWARD ISLAND: roadside-thickets and borders of dry woods, Malpeque, August 29, 1912, *Fernald, Long & St. John*, no. 8135 (TYPE in Gray Herb.).

In typical *Aster cordifolius* the cordate leaves are serrate and with an open sinus, and the inflorescence is definitely paniculate, the ascending or spreading branches paniculate-forking.

SENECIO FERNALDII Greenman, Ann. Mo. Bot. Gard. iii. 90 (1916). This little species of the limestone barrens of Table Mountain, Port à Port Bay, Newfoundland, was based by Greenman upon a single specimen. Further material collected by Dr. St. John and the writer in July, 1914 (no. 10,873) shows the species to range from 5–13 cm. in height; the blades of the coriaceous mostly purple-tinged basal leaves to range from narrowly cuneate-obovate to reniform and 0.3–2 cm. long, 0.5–1.5 cm. broad, and to have rounded or acute dentations or even to be lyrate-pinnatifid. The corollas, undescribed by Greenman, have a deep-orange to almost scarlet limb; the tube bears 5 dark stripes up to the sinuses and the lobes are bordered by a similar dark line, and in the expanded flowers the anthers are conspicuously exserted.

Like most of the other species of *Senecio* with discoid heads *S. Fernaldii* has a form with well developed rays, in this case the ligules being broadly oblong, 6 mm. long, 3–3.5 mm. broad, with 3 rounded terminal teeth and 4 dark longitudinal lines. This form may be called

SENECIO FERNALDII Greenman, forma **lingulatus**, n. f., lingulis oblongis 6 mm. longis 3–3.5 mm. latis longitudinaliter 4-lineatis apice 3-dentatis dentibus rotundatis.— NEWFOUNDLAND: very scarce, with the typical discoid form of the species, dry exposed ledges and shingle on the limestone tableland, altitude 200–300 m., Table Mountain, Port à Port Bay, July 16 & 17, 1914, *Fernald & St. John*, no. 10,873a (TYPE in Gray Herb.).

STUDIES IN CERTAIN NORTH AMERICAN SPECIES OF LATHYRUS.

Frederic K. Butters and Harold St. John.

Lathyrus venosus Muhl. is a strictly North American species which is nearly confined to the eastern half of the continent, as all the records by early botanists crediting it to the Rocky Mountains or the Pacific Slope have proved to be founded on misconceptions. As the species ranges from Georgia to Saskatchewan, it is not surprising that it shows considerable variation, and collectors have sometimes noted a certain discrepancy between their different collections, and have commented on it on their labels. Thus we find T. C. Porter saying of a certain specimen, "The large stipules puzzle me!" In spite of such hints, the writers and compilers of floras generally have not recognized or discussed the variability which exists in the size and shape of the stipules, the shape of the leaflets, and the character of the pubescence. The only exception to this is the treatment by Torrey and Gray,[1] who give a general description covering the species and all its variations, and then under this describe two varieties, β and γ. Var. β is said to have "larger oblong-ovate leaflets; stipules linear-lanceolate," and its range is given, "Georgia, *Dr. Boykin.*" We now know this variety from several stations from North Carolina to Texas. It has ovate leaflets, linear-lanceolate stipules, slightly pilose calyx-tubes, and often a little puberulence on the stems and leaflets.

The variety γ of Torrey and Gray is described as being "minutely downy-pubescent; ....stipules linear lanceolate,....calyx and pedicels densely pubescent," and as growing from Saskatchewan to the shore of Lake Superior and Illinois, "also N. W. Coast and California, ex *Hooker.*" The record taken from Hooker, crediting this variety to California and the Northwest Coast should plainly be excluded as belonging to some one, or more than one, of the large purple-flowered species of the Pacific slope, which resemble *L. venosus,* but which are amply distinct from that species. After eliminating this western element, we can say that we know the variety with linear-lanceolate

[1] Torrey and Gray, Fl. N. Am. i. 274–5 (1838).

stipules and a dense puberulence on the calyx and pedicels, and in fact throughout the plant, from West Virginia and Tennessee, north to Ontario, and west to Saskatchewan.

Variety α of Torrey and Gray is by inference *L. venosus* of Muhlenberg, but it is not described by Torrey and Gray, nor is any statement of its range given except in the general description and the general range of the species, which are so framed as to include all the varieties. *L. venosus* of Muhlenberg was, however, originally described as a glabrous plant with ovate obtuse leaflets, and large ovate semi-sagittate stipules. A plant corresponding entirely to this description grows from northern New Jersey to Virginia.

It can be seen that these varieties of Torrey and Gray are perfectly distinct entities, with a series of correlated characters, and with definite geographical ranges. There are in the Gray Herbarium, however, half a dozen specimens which grow within the range of some one of these entities, but which have a greater or less admixture of characters. Such a specimen is one collected by *Frank C. Gates*, no. 1682.5, June 22, 1907, in an open grassy thicket, Winnetka, Illinois. Growing within the range of var. γ of Torrey and Gray, it has the heavy uniformly distributed hirtellous pubescence of that variety, the broadly ovate leaflets of their var. β and the broad ovate-lanceolate stipules of *L. venosus* of Muhlenberg sensu stricto. The existence of such specimens as this has convinced the authors that the entities noted above, though for the most part easily recognizable, and possessing definite geographical ranges, should be treated as varieties rather than as species. In the following synopsis we have indicated the characters of the species and of each of the varieties, and have assigned names to the latter.

Lathyrus venosus Muhl. in Willd. Sp. Pl. iii. pt. 2, 1092 (1803); *Orobus Mühlenbergii* Alefeld, Bonplandia, ix. 146 (1861). Plant nearly glabrous: stems stout, 4-angled, ridged and striate, but not winged, climbing, attaining a length of about 1 m.: stipules ovate-lanceolate, semi-sagittate; those of the lower nodes 2–3.5 cm. long, 4–10 mm. broad; leaflets 10–12, elliptic or ovate-elliptic, mucronate, dark green above, paler beneath, with the veins prominent, 1.5–6.5 cm. long, 1–2.8 cm. wide, opposite or sub-alternate: peduncles one half to two thirds the length of the subtending leaves, 5–10-flowered: flowers 15–20 mm. long; calyx glabrous except for the ciliation on the sepals; the two upper sepals short and convergent, the three lower, linear-lanceolate; corolla purplish.

Type Collection: "*in* Pensylvania, *Muhlenberg.*"

Specimens examined: New Jersey: rocky banks of the Delaware River, Phillipsburg, Warren Co., June 5, 1910, *K. K. Mackenzie*, no. 4585 A; banks of the Delaware River in Warren and Hunterdon Cos., June and July 1882, *Thos. C. Porter*. Pennsylvania: Bethlehem, June 8, 1873, *Thos. C. Porter;* banks of the Lehigh River, Lehigh Co., 1865, *A. P. Garber*. Maryland: on rocks at Great Falls of the Potomac, May 10, 1899, *Th. Holm*. District of Columbia: alluvial ground, vicinity of Washington, May 6, 1896, *E. S. Steele*. Virginia: Glasgow, May 29, 1909, *Edwin B. Bartram*.

Var. **meridionalis**, n. var., var. β of Torrey and Gray, Fl. N. Am. i. 274 (1838), a specie differt caule paulo hirtello; stipulis minoribus lineari-lanceolatis semi-sagittatis ad nodos inferiores 1–1.5 cm. longis 1.5–3 mm. latis, ad nodos superiores minimis; foliolis late ovatis obtusis hirtellis vel glabratis; pedunculis 5–18-floriferis; calyce paulo hirtello vel glabrato.

This variety differs from the species in having the stem lightly hirtellous; the stipules smaller, linear-lanceolate and semi-sagittate, those of the lower nodes 1–1.5 cm. long, 1.5–3 mm. wide, those of the upper nodes very minute; the leaflets broadly ovate, obtuse, hirtellous or glabrate; peduncles 5–18-flowered; the calyx lightly hirtellous or glabrate.

Specimens examined: North Carolina: wooded slopes of Pisgah Mountain, June 16, 1897, *Biltmore Herbarium*, no. 1222 b; mountains, Hot Springs, June 3, 1899, *J. R. Churchill*. Georgia: *S. Boykin* (type in Gray Herb.); *Nuttall*. Louisiana: banks of streams, Shreveport, April 20, 1901, *Wm. M. Canby*. Texas: *Wright*. Also specimens grown in the Harvard Botanical Garden, from seed collected near the French Broad River, Tennessee. Oklahoma. Rhod. 45: 269. 194

Var. **intonsus**, n. var., var. γ of Torrey and Gray, Fl. N. Am., i. 274 (1838); *L. multiflorus* Nutt. ex Torrey and Gray, loc. cit.; *L. decaphyllus* Hooker, Fl. Bor.-Am. i. 159 (1840); probably also *L. decaphyllus* Pursh, Fl. Am. Sept. 471 (1814), a specie differt planta tota hirtella; stipulis minoribus, lineari-lanceolatis semi-sagittatis ad nodos inferiores 1.2–2 cm. longis, 2.5–5 mm. latis, ad nodos superiores angustissimis; foliolis ellipticis; pedunculis 6–18-floriferis.

This variety differs from the species in being hirtellous throughout; in attaining the height of 2 m.; in having smaller stipules, which are linear-lanceolate and semisagittate, those of the lower nodes 1.2–2 cm. long, 2.5–5 mm. wide, those of the upper nodes very narrow; and in the 6–18-flowered peduncles. It differs from the var. *meridionalis* in its greater pubescence, its somewhat larger stipules, and especially in the form of the leaflets, which are elliptic instead of broadly ovate.

Specimens examined: West Virginia: altitude 2500–3400 ft., Kates Mountain, Greenbrier Co., May 17, 1893, *A. A. Heller*. Tennessee: shady bank, Lookout Mountain near Chattanooga, May 18, 1911, *J. R. Churchill*. Ontario: hillside near Galt, June 6, 1905, *Geo. Prescott;* Point Edward, Lake Huron, June 19, 1901, *John*

Macoun, Can. Geol. Surv. no. 34,218; twenty miles up the Kaministiqua, Lake Superior, July 12, 1869, *John Macoun* no. 20. WISCONSIN: Green Bay, June 9, 1898, *J. H. Schuette;* Despere Ledge, June 30, 1882, *J. H. Schuette* (TYPE in Hb. Gray). MINNESOTA: Nicollet, June, 1892, *C. A. Ballard;* Lake City, June 25, 1883, *W. H. Manning.* MANITOBA: Lake Winnepeg Valley, 1857, *Bourgeau.* NORTH DAKOTA: thickets in Turtle Mountains, July 24, 1902, *J. Lunell.* SASKATCHEWAN: 1858, *E. Bourgeau;* Cypress Hills, June 27, 1894, *John Macoun.*

In the study of the varieties of *Lathyrus venosus* described above, it has become evident that there has been much confusion in the nomenclature of certain western species of this genus. This confusion has arisen chiefly from varying interpretations of *L. decaphyllus* and *Vicia stipulacea* of Pursh, and *L. polymorphus* of Nuttall.

Lathyrus decaphyllus Pursh, Fl. Am. Sept. ii. 471 (1814), is described as follows: "L. caule tetragono, stipulis semisagittatis linearibus, foliis 5-jugis: foliolis oblongo-ellipticis mucronatis, pedunculis 3–4 floris. On the banks of the Missouri. ♃. v. s. Flowers purple, large; pods large." The plants which Pursh described in the body of his flora as from "the banks of the Missouri" were mainly those collected by Lewis and Clark on their exploring expedition, but this species is not mentioned in any of the recent editions of their Journals nor is it among the Lewis and Clark plants now deposited in the herbarium of the Academy of Natural Sciences of Philadelphia. A manuscript note of Dr. Gray's shows that the type specimen was not among the Pursh plants in the Lambert Herbarium, when he examined them. It is therefore exceedingly improbable that the type of this species is now in existence, and consequently the interpretation of it must rest entirely upon the description in Pursh's Flora. In 1818 Nuttall [1] interpreted *L. decaphyllus* Pursh as identical with *Vicia stipulacea* Pursh. There seems to be little justification for this, as the latter species has narrowly linear-lanceolate leaflets, instead of the oblong-elliptic ones attributed to *L. decaphyllus*. Following Prof. N. L. Britton,[2] recent American authors have applied the name *L. decaphyllus* to a low, large-flowered species of the Rocky Mountains of Colorado, New Mexico and Arizona. This species is said to occur as far north as southern Idaho, but even granting the correctness of this report, it still fails by three hundred miles to reach the

[1] Nuttall, T., Genera of N. Am. Pl. ii. 97 (1818).
[2] Mem. Torr. Bot. Club, v. 207 (1894).

"banks of the Missouri," which is the type location of Pursh's species. Besides the discrepancy of range, this Rocky Mountain species differs from *L. decaphyllus* as characterized by Pursh, in having elliptic-lanceolate instead of oblong-elliptic leaflets, and in very rarely possessing five pairs of leaflets. Although Pursh described his species as having only 3–4 flowers, the authors feel, on account of the other characters,— the semi-sagittate linear stipules and the five pairs of oblong-elliptic mucronate leaflets,— and on account of the type locality, that *L. decaphyllus* Pursh was in all probability identical with the plant above described as *L. venosus* var. *intonsus*. It may be noted that Hooker [1] made a similar interpretation of Pursh's species, although he failed to recognize its specific identity with the eastern form of *L. venosus*.

The only other name which has been used for the Rocky Mountain species which we have deprived of the name *L. decaphyllus*, is *L. polymorphus* Nutt.[2] In the original publication of this name, after the technical description, Nuttall adds, "Hab. On the grassy alluvial plains of the Missouri, from its confluence to its sources? Flowers as large as those of *Pisum maritimum*, and of a fine purple, variable however in size as well as the leaves, hence it appears to be *L. decaphyllus* Ph 2. p. 471, and *Vicia stipulacea* of the same, 2. p. 739. as both these specific names are inexpressive and deceptive, I could not in candour do otherwise than reject them." Now, we have already shown that *Lathyrus decaphyllus* Pursh, and *Vicia stipulacea* Pursh are not identical. Excluding, then, Nuttall's synonym, *L. decaphyllus*, his description of *L. polymorphus*, in greater part at least, is applicable to *Vicia stipulacea* of Pursh, and we would, accordingly relegate it to the synonymy of the latter species, since we cannot reject an older specific name as "inexpressive and deceptive." As will appear below, Pursh's *Vicia stipulacea* is not the Rocky Mountain species now under discussion. It is possible that even more than two species entered into Nuttall's conception of *L. polymorphus*, but if so, we are unable to identify them, and the range given seems to preclude entirely the application of this name to the Rocky Mountain species discussed above. We are, therefore constrained to describe this well known plant as a new species.

Lathyrus **eucosmus**, n. sp. — *L. polymorphus* of Torrey and Gray in part, and of later American authors, not of Nuttall; *L. decaphyllus*

[1] Hooker, W. J., Fl. Bor.-Am. i. 159–60 (1839).
[2] Nuttall, T., Genera of N. Am. Pl. ii. 96–7 (1818).

of Britton, Mem. Torr. Bot. Club. v. 207 (1894), not of Pursh or Hooker — humilis, ramosus saepe decumbens pilosus vel saepius basim versus glabratus, 1.5–3.5 dm. altus; caule 1–3 mm. crasso striato 4-angulato haud alato; stipulis lineari-lanceolatis attenuatis semisagittatis 5–22 mm. longis, 1–4 mm. latis, nervosis; foliolis 4–12 subalternis elliptico-lanceolatis mucronatis 1.5–6 cm. longis, 3–13 mm. latis, nervosis; cirrhis simplicibus vel 2–3-fidis; ramis cum pedunculis 1–3 folia superantibus 2–5-floriferis instructis; floribus magnis pulchris purpureis 1.8–3 cm. longis; calyce campanulato oblique 5-dentato, dentibus superioribus brevibus adscendentibus, inferioribus attenuatis patentibus.

Plant low and branching, often decumbent, pilose, or more frequently glabrate towards the base, 1.5–3.5 dm. tall: stem striate and 4-angled, not at all winged, 1–3 mm. in thickness: stipules linear-lanceolate, attenuate semisagittate, 5–22 mm. in length, 1–4 mm. in breadth, with prominent raised nerves; leaflets 4–12 in number, sub-alternate, elliptic-lanceolate and mucronate, the longitudinal nerves raised and prominent, leaflets 1.5–6 cm. long, 3–13 mm. wide; tendrils unbranched, or 2–3-parted: branches of the stem bearing 1–3 peduncles, which are 2–5-flowered, and exceed the leaves: flowers beautiful, large and purple, 1.8–3 cm. long; calyx campanulate obliquely 5-toothed, the upper teeth short and ascending, the lower elongate and divergent.

Specimens examined: Colorado: Rocky Mountains, 1862, *E. Hall & J. P. Harbour*, no. 111; low lands by streams on the plains, Golden City etc., May 25, 1870, *E. L. Greene*, no. 94; Gunnison, altitude 7680 ft., July 7, 1901, *C. F. Baker*, no. 355; Sapinero, altitude 7250 ft., June 19, 1901, *C. F. Baker*, no. 181; clay hillside, altitude 5400 ft. Naturita, May 16, 1914, *Edwin Payson*, no. 312; Gato, June 18, 1899, *C. F. Baker*, no. 432; roadsides below Mancos, July 8, 1898, *C. F. Baker*, *F. S. Earle* and *S. M. Tracy*, no. 413; collected on Long's 1st expedition, *Dr. James*. New Mexico: altitude 7044 ft., Santa Fe, June, 1874, *J. T. Rothrock*, no. 3; altitude 7200 ft., Santa Fe, May 4, 1897, *A. A. & E. Gertrude Heller*, no. 3658 (type in Gray Herb.); 1847, *A. Fendler*, no. 115; Gray, altitude 6000 ft., June 13, 1898, *Josephine Skehan*, no. 24; Fort Wingate, 1882, *W. Matthews*, no. 18. Arizona: Little Colorado, *Dr. Newberry;* 1880, *Mr. & Mrs. J. G. Lemmon.*

Of the various names mentioned above, which have been tossed about from one species to another, there is but one left to dispose of, *Vicia stipulacea* of Pursh.[1] This species was described in considerable detail by Pursh, in the supplement to his Flora. The type was collected by Bradbury, presumably along the Missouri River, somewhere

[1] Pursh, F., Fl. Am. Sept. ii. 739 (1814). The original spelling is *Vicia stipulacca*, an obvious misprint, which has been uniformly quoted as *V. stipulacea*. Unfortunately the name occurs but once, in Pursh's Flora, as the supplement is not indexed. The so-called second edition of the Flora is merely an identical reprint.

between its mouth and the site now occupied by Bismark, North Dakota. The actual type specimen is now in the herbarium of the Academy of Natural Sciences of Philadelphia. There is also a small fragment of the same specimen, given to Dr. Gray many years ago, and now in the Gray Herbarium. Mr. Bayard Long has been kind enough to examine the Philadelphia specimen for us. He writes, "There are two quite similar plants, mounted on one of the old smaller-sized sheets characteristic of 'Pursh's specimen!' (as they are marked) with an original ticket '*Vicia Stipulacea*' and also pencilled on (as a copy of data on the back of the sheet) Louisiana, Bradbury'." Mr. Long gives a detailed description of the specimens, which corresponds exactly with the fragment in the Gray Herbarium, and with our conception of the species formed from Pursh's description. It is the abundant plant of the dry plains of Nebraska, Kansas, Oklahoma, Wyoming and Colorado, which has commonly passed under the name of *L. ornatus* Nutt. This plant has simple or bushily branched striate 4-angled wingless stems: stipules linear or linear-lanceolate with prominent nerves, often half the size of the leaflets, and sometimes slightly semi-sagittate, the lower lobe much shorter than the upper; the leaflets 4–10, opposite or sub-alternate, narrowly linear or linear-lanceolate, mucronate; the tendrils reduced to a mere bristle or wanting: the peduncles 2–7-flowered, exceeding the leaves; the flowers purple, large and showy, 2–3 cm. long. It is either quite glabrous, as is the type material, or densely sericeous throughout, the phase described as *L. ornatus* Nutt., var. *incanus* Smith & Rydb., and later raised by Dr. Rydberg to specific rank without any further discussion of its characters.

Lathyrus polymorphus Nutt.,[1] excluding the synonym *L. decaphyllus* Pursh, is, as stated above, and as maintained by Nuttall, himself, a synonym of *Vicia stipulacea* Pursh, but as the latter name was published at an earlier date, and is not invalidated in any way, it cannot be rejected.[2]

[1] Nuttall, T., Genera of N. Am. Pl. ii. 96–7 (1818).

[2] *Lathyrus stipulaceus* Le Conte in Torrey's Catalogue of the Plants of New York, 92 (1819), taken up by De Candolle (Prod. ii. 371, 1825) and Hooker (Fl. Bor. Am. i. 160, 1840), was later reduced by Torrey himself (Fl. of the State of N. Y. i. 158, 1843) to the position of a pure synonym of *L. myrtifolius* Muhl., and has been so regarded ever since. According to the International Rules, the existence of this invalid homonym cannot invalidate the use of the specific name *stipulaceus*, for the plant now under discussion. Apparently Hooker applied Le Conte's name to some plant other than the New York plant to which it was originally given, possibly to some form of *L. venosus*, but his interpretation of this name is of neither taxonomic nor nomenclatorial interest, as the name itself has obviously no validity.

Torrey and Gray, in their Flora [1] published one of Nuttall's manuscript names, *Lathyrus ornatus*. Specimens of Nuttall's original collection are in the Gray Herbarium, and in the herbarium of the Academy of Natural Sciences of Philadelphia. They are marked in Nuttall's handwriting, "Lathyrus * ornatus, Kansa prairies." This appears in Torrey and Gray's Flora as "Kamassa prairies," but in the copy now in the library of the Gray Herbarium there is a marginal note made by Dr. Gray, changing Kamassa to Kansa. Mr. Bayard Long, after comparing the type specimens of *Vicia stipulacea* Pursh and *Lathyrus ornatus* Nutt. in the herbarium of the Philadelphia Academy, reports to us, "I should say that they are unquestionably identical!"

Without further discussion, we proceed to make the new combinations which are necessary:

Lathyrus **stipulaceus** (Pursh), n. comb. *Vicia stipulacea* Pursh, Fl. Am. Sept. 739 (1814); *Lathyrus polymorphus* Nutt. in greater part, Gen. N. Am. Pl. ii. 96–7 (1818); *L. ornatus* Nutt. ex T. & G., Fl. N. Am. i. 277 (1838).

L. stipulaceus (Pursh) Butters & St. John, var. **incanus** (Smith & Rydb.), n. comb. *L. ornatus* Nutt., var. *incanus* Smith & Rydb. Bot. Sem. Univ. Nebr. pt. 21, 64 (1895); *L. incanus* (Smith & Rydb.) Rydb. Bull. Torr. Bot. Club, xxxiii. 144 (1906).

Cambridge, Massachusetts.

A PRAIRIE NEAR ANN ARBOR, MICHIGAN.

Henry Allan Gleason.

The original land survey of Washtenaw County, Michigan, now on file in the office of the Register of Deeds, describes a tract of land about six miles north of Ann Arbor as "plains." Several other small areas are described as "prairies," and it is a matter of some botanical interest to ascertain what the original vegetation of such areas was. In every case investigated so far, the so-called prairies have been found to be bogs. Probably the word prairies was suggested to the surveyor by the considerable expanse of level bog covered thickly with *Carex filiformis*.

[1] Torrey and Gray, Fl. N. Am. i. 277 (1838).

The plains, on the other hand, occupy an area of rolling topography, so that their name was probably suggested by the vegetation. The older inhabitants of the region verify this idea, and state that it was originally completely treeless. At the present time it is almost completely under cultivation, and several small groves of native trees occur. The prairie vegetation with which it was formerly covered has disappeared almost completely. A few species still occur along the roadsides, such as *Andropogon furcatus*, *Desmodium illinoense*, *Silphium terebinthinaceum*, *Coreopsis tripteris*, and *Heliopsis scabra*. Further search at other seasons would doubtless reveal others.

Just north of this area there is still preserved a small tract of grassy marsh, about two acres in extent and in almost original condition. This marsh resembles a hydrophytic prairie closely in general appearance, and includes a number of prairie species in its floristic composition.

The wetter portion of the tract is dominated chiefly by *Sorghastrum nutans* and *Sporobolus heterolepis*. The former is a common member of prairie associations farther west, although its distribution ranges eastward to the Atlantic coast. *Sporobolus heterolepis* is listed in manuals as extending east to Connecticut. It is abundant in the prairies of Iowa and adjacent states, is rare in Illinois, and is not listed at all in Beal's Flora of Michigan. With these two grasses is a mixture of other herbaceous species. Some of these are common in Michigan bogs and swamps, as *Sarracenia purpurea*, *Amphicarpa monoica*, *Parnassia caroliniana*, and *Phragmites communis*. Others are equally typical of hydrophytic prairies in Illinois, as *Gentiana procera*, *Liatris spicata*, *Oxypolis rigidior*, and *Solidago ohioensis*, while *Tofieldia glutinosa* suggests the shores of the Great Lakes.

In the drier portion of the area *Sporobolus heterolepis* and *Andropogon furcatus* are dominant. The latter, the well-known blue-joint grass, is typical of the mesophytic prairies of the Middle West. Other prairie species in this portion are *Thaspium aureum*, *Muhlenbergia mexicana*, *Solidago ohioensis*, *Helianthus grosseserratus*, *Phlox pilosa*, *Aster novae-angliae*, *Silphium terebinthinaceum*, *Andropogon scoparius*, *Cypripedium candidum*, *Sorghastrum nutans*, *Liatris spicata*, and *Desmodium illinoense*. Four species common in most Michigan bogs also occur: *Potentilla fruticosa*, *Eupatorium purpureum* var. *maculatum*, *Aspidium thelypteris*, and *Lilium philadelphicum*.

The peculiarity of the small tract, accordingly, lies not so much in

the species represented as in their general grouping and the appearance of the area. The almost complete absence of shrubs, the dominance of grasses, and the level topography combine to give it a strong resemblance to a hydrophytic prairie of northern Illinois. Indeed it may be assumed that this area represents a relic colony of prairie plants, persisting from a time when prairies occupied a wide extent in southern Michigan, and now somewhat mixed with various marsh species which have immigrated in recent times from the neighboring swamps and bogs.

Paper no. 157 from the Botanical Laboratory
of the University of Michigan.

REMARKS ON SEVERAL NORTH AMERICAN SPECIES OF ALOPECURUS.

Harold St. John.

A thorough study of abundant material and dissections of spikelets from each specimen have made it clear to the writer that *Alopecurus geniculatus* L. and *A. aristulatus* Michx.[1] have constant characters and should be treated as distinct species.

A. aristulatus Michx. is a native of northern Europe, Asia, and in America from the region of the Gulf of St. Lawrence south to Maryland and west to the Pacific slope. It has a short straight awn attached to the back of the lemma midway between its top and base. The awn is included in or slightly extruded beyond the glumes. Mature spikelets measure from 2–2.2 mm. in length.

A. geniculatus L., a native of northern Eurasia, has a long exserted twisted awn attached near the base of the lemma, usually one quarter of the distance from its base to its summit. Mature spikelets of this species measure 3 mm. in length. The drawings in Britton & Brown's

[1] *A. fulvus* Sm. Eng. Bot. xxi. 1, 467 (1805) is synonymous with *A. aristulatus*, and is often taken up for it on the basis of having been published in 1790, as the first volume of Smith's English Botany was, but volume xxi in which the original description and plate appeared was published in 1805. *A. aristulatus* was published by Michaux in his Fl. Bor.-Am. i. 43 (1803).

Illustrated Flora [1] illustrate clearly the spikelet-differences between *A. aristulatus* and *A. geniculatus*. Although rather common in eastern North America, *A. geniculatus* does not seem to occur far away from the habitations or works of man, and it does not seem to be a native.

A series of specimens from the Coastal Plain, from eastern Massachusetts southward to Florida and Texas, and northward in the Mississippi valley to Madison, Wisconsin, have the habit and even the exact awn-characters of *A. geniculatus*, but instead of having spikelets 3 mm. in length, as does that species, these coastal plain specimens have the mature spikelets 2–2.4 mm. in length. The measurements in all these cases apply to the length of the glumes, and do not include the awn. With the exception of the range these plants seem to have no other difference but the size of the spikelet to separate them from the European *A. geniculatus*. Consequently, it is deemed best to treat this plant as an American variety. The labels of the twenty-six sheets of this plant at hand are tantalizingly inadequate in regard to the statement of habitat. The inference is, however, that this plant is a native of North America. Certainly there are no old world species or varieties into which it fits.

Walter described an *A. carolinianus*,[2] which may have been the plant in question, the *A. geniculatus* of current manuals of the botany of the southern states. Walter's description is unfortunately too brief to be capable of exact interpretation. Prof. A. S. Hitchcock in his article on "The Identification of Walter's Grasses" [3] reports that no specimen of this exists in Walter's herbarium, although Pursh seems to have seen it there before publishing his Flora Americae Septentrionalis in 1814. Dr. Gray examined and made notes concerning Walter's plants in February, 1839, but he did not consider the grasses. After a discussion of the conflicting evidence about *A. carolinianus*, Hitchcock concludes, "This species must remain doubtful."

In 1808 Poiret described [4] as a new species *A. ramosus*, giving its characters in great detail. These were drawn from a specimen collected by Bosc in Carolina. This is surely the coastal plain *Alopecurus* under discussion. Further confirmation of this is given by Steudel [5] who maintains Poiret's species *A. ramosus*, cites the *Bosc* specimen

[1] Ill. Fl. ed. 2, i. 192 (1913).
[2] Walter, Thomas: Flora Caroliniana, 74 (1788).
[3] Ann. Rep. Missouri Bot. Gard. xvi. 40 (1905).
[4] Poir. in Lamarck: Encyclopedie Methodique Botanique, viii. 776 (1808).
[5] Steudel, E. G.: Synopsis Pl. Graminearum, i. 147–8 (1854).

from Carolina, and adds one other, "N. Orleans. *Drummond.*" Fortunately there is in the Gray Herbarium a specimen of this latter, and it is without any question the southern plant with small spikelets. All doubt as to the application of the name *A. ramosus* being removed, the new combination is made below.

Alopecurus geniculatus L., var. **ramosus** (Poir.), n. comb. *A. ramosus* Poir. in Lamarck, Encyc. Meth. Bot. viii. 776 (1808).

Type specimen: Carolina: *Bosc.*

Specimens examined (all in the Gray Herbarium or the Herbarium of the New England Botanical Club). Massachusetts: path by ditch, Great Meadows, 20 rods east of rocky island, Concord, July 7, 1859, *H. D. Thoreau.* Connecticut: Rocky Hill, June 15, 1894, *Frances Wilson Starmer;* wet places, common, Rocky Hill, May 28, 1894, *Frances Wilson Starmer,* Grasses of Conn., no. 59. Pennsylvania: meadows near Philadelphia, July, 1876, *Isaac C. Martindale.* Virginia: in roadside ditch, Buckroe, May 18, 1912, *B. L. Robinson,* no. 417. South Carolina: damp clay soils, Santee Canal, April, *H. W. Ravenel.* Georgia: Chattahoochie, May 2, 1899, *Wm. M. Canby.* Florida: *Chapman;* 1843, *F. Rugel,* no. 223. Mississippi: Starkville, April 19, 1892, *S. M. Tracy,* no. 1396. Louisiana: New Orleans, *Drummond, Riddell;* common in wet ground, Gretna, April 19, 1899, *C. R. Ball,* no. 303. Texas: *Wright;* Terrell, May 5, 1904, *F. J. Tyler.* Tennessee: damp ground, Jackson, April, 1893, *Samuel M. Bain,* no. 212. Oklahoma: Huntsville, April 20, 1896, *Laura A. Blankinship;* at grassy edge of springy creek, Alva, May 1 and 20, 1914, *G. W. Stevens,* nos. 3,018 & 3,044; edge of small pond, Whitehorse, April 30, 1913, *G. W. Stevens,* no. 243; at edge of pond, Cherokee, May 24, 1913, *G. W. Stevens,* no. 643. Kansas: low ground, Riley Co., May 21, 1895, *J. B. Norton,* no. 600. Iowa: Mt. Pleasant, July 18, 1894, *J. H. Mills.* Illinois: wet lands, Athens, 1861, *E. Hall;* damp heavy ground, Peoria, July, 1903, *F. E. McDonald;* moist soil, Wady Petra, June 13, 1899, *Virginius H. Chase,* Amer. Gr. Nat. Herb. no. 335. Wisconsin: Madison, *T. J. Hale.*

Gray Herbarium.

Vernonia altissima Nutt. var. **taeniotricha,** var. nov.— Caulis et panicula plus minusve sordide pilosa pilis laxe curvatis multiloculatis; folia supra sparse et sordide pubescentia infra ad costam patenti-pilosa ad venas laterales patenti-pilosula pilis laxis sordidis multiloculatis.— Indiana: in a prairie habitat, along the Lake Erie Railway, west of Goldsmith, Tipton Co., 26 Aug. 1913, *Mrs. Chas. C. Deam* 14,114; low border of swamp about 6 km. east of Columbia City, Whitley Co., 23 Aug. 1914, *Chas. C. Deam* 14,539 (type in Gray Herb.). Illinois: roadside, Urbana, 23 Sept. 1909, *A. S.*

Pease 12,442. Mississippi: Star, 18 Aug. 1903, *S. M. Tracy* 8537; Agricultural College, Oktibbeha Co., 11–17 Aug. 1896, *C. L. Pollard* 1267.— The following sheets (of which the two latter were labelled *V. altissima* by Mr. Gleason) are similar but have considerably larger heads, and probably represent a different form. Missouri: St. Louis, 1846, *G. Engelmann;* shady banks of Mississippi River, St. Louis, Sept., 1842, *G. Engelmann;* bottoms, Courtney, 2 Oct. 1903, *B. F. Bush* 1906.

From the description of *Vernonia gigantea pubescens* Morris,[1] Proc. Biol. Soc. Wash. xiii. 179 (1900), I was inclined to believe that it might be identical with the variety here described. Examination of the type (U. S. Nat. Herb. 393,253: meadow along Horse & Hound Crs., below Baileysville, Wyoming Co., West Virginia, alt. 335–365 m., 20 Aug. 1900, *Morris* 1274), made possible through the kindness of Mr. P. C. Standley, has shown, however, that such is not the case. The stem of this specimen is smooth nearly to the inflorescence, the leaves subglabrous or subglabrate above, and beneath rather sparsely pubescent with appressed not obviously many-celled hairs. It is more or less discolored with bad drying and somewhat covered with a grayish mold, and the name given it by Morris may have been derived in part from this circumstance. Its pubescence is in fact precisely the same as that of the plant here taken, following Nuttall's description and Gleason's monograph, as typical *V. altissima* Nutt. Morris's plant, however, can scarcely belong to this species, for its phyllaries are rather shortly but distinctly caudate-attenuate. If not referable to *V. glauca* (L.) Willd., from which it scarcely differs save in the slightly smaller heads and somewhat purplish-tinged pappus, it is probably a hybrid of that with some other species.— S. F. Blake, Gray Herbarium.

[1] *Vernonia maxima pubescens* Morris ex Britton, Man. ed. 1.919 (1901); *V. altissima* Nutt. var. *pubescens* (Morris) Daniels, Univ. Mo. Studies, Sci. Ser. i. 402 (repr. 260) (1907).

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